psychiatry's remaining in the closest possible contact with the rest of medicine. Although this latter point has been emphasized repeatedly in a number of fine articles by many of our leading psychiatrists, it appears necessary to reemphasize it.

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Gastrojejunocolic Fistula

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GASTROJEJUNOCOLIC FISTULA can be the most challenging complication of peptic ulceration. Although it is possible to correct these fistulas by a single operation, it is suggested that if there is extensive surrounding inflammatory reaction staged operations should be used—preliminary proximal colostomy, then later a second operation (resection of involved colon and jejunum and partial gastrectomy, with or without vagotomy). An alternative, although somewhat more complicated, staged operative treatment consists of preliminary anastomosis between the ileum and descending colon, followed by partial colectomy, jejunectomy and gastrectomy.

The operative mortality associated with repair of gastrojejunocolic fistula was appallingly high until 1939, when Pfeiffer[4] reported considerable improvement in cases in which a preliminary proximal colostomy was done. At the second operation several months later (when, it was observed, there was relatively little inflammatory reaction about the fistula) the jejunum was detached from the stomach and the defects in the jejunum, the colon and the stomach were closed. Pfeiffer observed that the cause of diarrhea in patients with gastrojejunocolic fistula was a reflux of colon contents through the fistula into the jejunum, producing severe enteritis.

Mathewson in 1941 reported upon several patients successfully treated by preliminary proximal colostomy (one by preliminary cecostomy) and then a month or so later by excision of the fistula and extensive partial gastrectomy. Lahey[1] and Marshall[2] also reported staged procedures which reduced mortality. Colostomy was not used. The terminal ileum was divided, the distal end closed and the proximal end (ileum) anastomosed to the descending colon. At a second operation, the terminal ileum and all colon to a point distal to the fistula were removed and partial gastrectomy was carried out.

Gastrojejunocolic fistulas are rare but diagnosis is not difficult. Recurrent "ulcer-type" pain following operation for peptic ulcer often may indicate marginal ulceration. Subsequent persistent diarrhea and loss of weight are presumptive of fistula. Barium enema roentgenograms nearly always are diagnostic.

REPORT OF A CASE

A 41-year-old machinist, first observed by the author in June, 1959, had had ulcer symptoms since 24 years of age. In 1951 he had had a four-fifths gastrectomy with a posterior anastomosis for duodenal ulcer. In 1952 he had the first of many episodes of gastrointestinal bleeding, often severe. By then at least two jejunal (marginal) ulcers had developed. Transthoracic vagotomy was done but gastrointestinal bleeding continued intermittently. The patient received 34 units of blood in the period between the initial surgery, in 1951, and the onset of persistent diarrhea early in 1959.

He was admitted to hospital in June, 1959, after four months of severe diarrhea (often as many as 12 stools in 24 hours), during which time he lost approximately 30 pounds in body weight. On physical examination a tender, firm mass 8 inches in diameter was palpated in the epigastrium. Barium enema studies showed a gastrojejunocolic fistula. Serum contents of sodium, potassium and proteins, and the carbon dioxide combining power, were within normal limits. Prothrombin time was normal. Serum chloride was 95 meq. per liter. Hemoglobin was 10.5 gm. per 100 cc., which increased to 14 gm. after the patient had received four units of blood in five days. Preoperatively, the patient also received 1 gm. of neomycin every four hours for four days, and enemas for one day. No antibiotics were given systemically before operation, nor were any instilled at any of the various points of anastomosis during operation.

At operation a decidedly inflamed mass about 8 inches in diameter surrounded the mid-transverse colon and the site of the previous gastrojejunostomy. There were two jejunal ulcers. One of them, 3 cm. in diameter, had penetrated the jejunum, ending in the transverse mesocolon. The other had eroded into the lumen of the mid-transverse colon, forming a gastrojejunocolic fistula 2 cm. in diameter. The afferent jejunal limb was approximately 20 cm. long. The gastric remnant was about the same length along the greater curvature. The duodenal stump was not visualized because of massive adhesions. The fistula was resected by removing segments of transverse colon and jejunum with respective end-to-end anastomoses. Then a high gastric resection with end-to-side antecolic anastomosis between the new gastric remnant and the jejunum just distal to the jejunojejunostomy was done. Postoperatively, the patient developed a fecal fistula, arising from the end-to-end colon anastomosis. This fistula communicated

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with a supratransverse mesocolic abscess, which was drained a month after the preceding operation. During his stay in hospital for that procedure, the patient had repeated episodes of tarry stools, and received 25 units of blood. He was discharged to his home two months later.

The fecal fistula did not close until January, 1960, six months after operation. The patient's bowel habit then became normal and the hemoglobin content of the blood was within normal limits. He said he had no abdominal pain and he was chiefly concerned about increasing obesity.

Two months later (March 13, 1960), the patient again entered the hospital because of tarry stools. Hemoglobin then was 8.7 gm. per 100 cc. of blood. Blood and electrolyte replacement was carried out and antibiotics were given. At operation (March 21, 1960) two large jejunal ulcers were observed opposite the gastric stoma. The larger one, 3 cm. in diameter, was bleeding. At the suture line of the previous end-to-end colon anastomosis there was an opening 1.5 cm. in diameter which ended in a blind tract. A further segment of jejunum was excised and end-to-end anastomosis was carried out; and further partial gastrectomy with full-lumen antecolic anastomosis was done between the new gastric remnant and jejunum distal to this second jejuno-jejunostomy. The area of the previous colonic anastomosis was resected and a new end-to-end anastomosis was formed near the hepatic flexure. A loop of ascending colon was exteriorized, and subsequently divided as a colostomy.

Suddenly, thirteen days later (April 3, 1960), the patient bled massively by mouth and from the colostomy. After receiving 16 units of blood in approximately eight hours, he was taken to the operating room moribund. Operation (jejunotomy) revealed a new bleeding jejunal ulcer 1.5 cm. in diameter opposite the gastrojejunal stoma. This ulcer did not involve any suture line. The hemorrhage was stopped by "oversewing" the ulcer.

About six weeks later (May 16, 1960), although barium enema showed moderate narrowing at the colonic anastomosis, closure of the colostomy was carried out. Five days later (May 21, 1960), obstruction developed at this point and the patient was again taken to surgery, again moribund, with a perforated cecum and the peritoneal cavity flooded with feces. The cecum and half of the ascending colon were rapidly exteriorized. The patient responded remarkably to intra-peritoneal wash of 1000 cc. of 0.5 per cent Clorpactin® XCB (monoxychlorosene); 20 million units of penicillin intravenously every 4 to 6 hours; and intravenous administration of vancomycin, tetracycline, and chloramphenicol. The septic shock was treated also by intravenous neo-synephrine. He was discharged to his home one month later, wearing a large ileostomy bag. During this period in hospital, he received 55 units of blood.

Four months later (October 28, 1960) the terminal ileum, ascending and transverse colon were resected and an end-to-end anastomosis between the remaining terminal ileum and splenic flexure was carried out. The patient tolerated this procedure well. He worked steadily as a machinist after February, 1961, having normal bowel habit and little or no abdominal pain. He had no special diet but took an antacid agent daily. (The continuing high gastric acidity remained unexplained. Incomplete vagotomy, antral remnant, or islet cell tumor are possible causes.) From 1951 (first operation) through October, 1960 (last operation) this patient has received 120 units of blood, most of it for marginal ulcer bleeding. In 17 months of observation after the last operation he required no further transfusions.

SUMMARY

Formidable complications followed when a one-stage operation for gastrojejunocolic fistula was done in the presence of extensive surrounding inflammatory reaction.

It is suggested that staged operations, including preliminary proximal colostomy, should be used in such a case.

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